Millimeter- and Submillimeter-Wave Front End Development for Remote Sensing of the Atmosphere

Completed Technology Project (2017 - 2018)

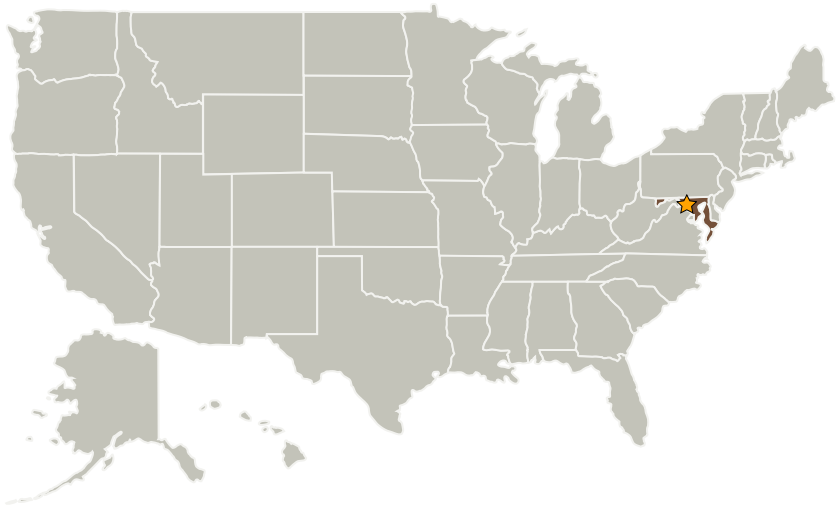
Project Introduction

The goal of this project is to develop integrated active noise sources with their coupling structure at mm- and submm-wave frequencies.

Anticipated Benefits

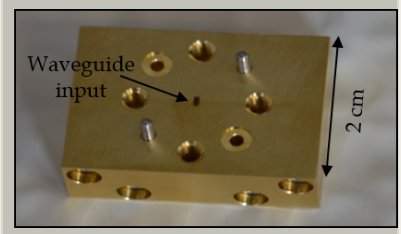
Waveguide-integrated noise sources can be used as transfer calibration standards that simplify the system by reducing the frequency external calibration is required. Ultimately, noise sources reduce the cost and complexity of instruments, and enable more flexible observation techniques and integration algorithms.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations
Maryland



Photograph of a packaged G-band noise source developed at GSFC.

Table of Contents

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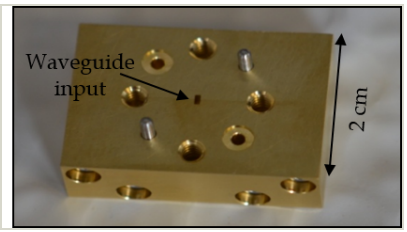
Completed Technology Project (2017 - 2018)

Images



Packaged millimeter-wave noise source
Photograph of a packaged G-band noise source developed at GSFC. *(https://techport.nasa.gov/image/28283)*

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Managers:

Terry Doiron
Matthew J Mcgill
William E Cutlip

Principal Investigator:

Negar Ehsan

Co-Investigators:

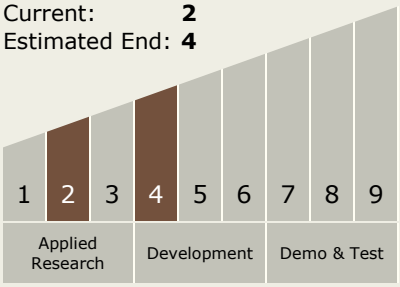
Edward J Wollack
Berhanu T Bulcha
Dongliang Wu
Kevin L Denis

Millimeter- and Submillimeter-Wave Front End Development for Remote Sensing of the Atmosphere

Completed Technology Project (2017 - 2018)

Technology Maturity (TRL)

Start: **2**
Current: **2**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

Target Destinations

Earth, The Moon, Others Inside the Solar System